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SYMPOSIUM.

THE NEXT STEP IN THE TUBERCULOSIS MOVEMENT.

THE BRITISH JOURNAL OF TUBERCULOSIS has striven throughout the testing times of war to focus attention on what seemed the most essential features of that fight against tuberculosis in which no armistice is permissible.¹ During the four and a half years of the great world conflict the Tuberculosis Movement in this country has been to all intents and purposes almost at a standstill. The Grand Cause has monopolized all energies. Comprehensive schemes for dealing with the tuberculosis problem have been held up. Many tuberculosis officers and other workers have been withdrawn for war service. The whole machinery of tuberculosis endeavour has in great measure been deranged. And now we find ourselves threatened with a marked increase in the prevalence of and mortality from tuberculosis; with but

¹ The Symposium on "War and the Future of the Tuberculosis Movement" appeared in the issue of this journal for January, 1916, Vol. X., No. 1. The Symposium on "The Tuberculosis Movement under War and After-War Conditions" appeared in the journal for January, 1917, Vol. XI., No. 1. The Symposium on "Tuberculosis among Combatants and War-Workers" appeared in the journal for April, 1917, Vol. XI., No. 2. The Symposium on "The Arrest of Tuberculosis under War and After-War Conditions" appeared in the journal for January, 1918, Vol. XII., No. 1. The Symposium on "Colonies for the Tuberculous" appeared in the journal for April, 1918, Vol. XII., No. 2. Other articles, and also the notes which have appeared in "The Outlook" section, have sought to arouse professional and public opinion to the pressing importance of the tuberculosis problem under existing conditions.

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few and imperfect weapons available and only a restricted number of competent combatants ready to direct agencies, offensive and defensive, in the struggle with tuberculosis. In view of the present situation, we have thought it well to collect a number of opinions from experts regarding the next step in the Tuberculosis Movement. These expressions of views vary somewhat, but they all contain suggestions which merit serious consideration.

FROM EDWARD W. HOPE,

O.B.E., M.D., D.SC.,

Medical Officer of Health for the City and Port of Liverpool; Professor of Public Health in the University of Liverpool.

The present scheme dealing with the problem of tuberculosis is based on the Report of the Departmental Committee, issued in 1912, the principles of which were adopted by the Local Government Board. This Committee recommended: (*a*) That the scheme should be available for the whole community; (*b*) that all forms of tuberculous disease should be provided for; (*c*) that provision should be made for institutional treatment at dispensaries and in residential institutions—Sanatoria, Hospitals, Farm Colonies, Open-Air Schools; (*d*) that arrangements should be made for domiciliary treatment by the general medical practitioners of the country. Experience has shown that the measures now in operation are inadequate, and a full and complete scheme for the prevention and treatment of tuberculosis should be elaborated at once. The appointment of a representative committee of suitably qualified persons to indicate the best way in which the difficulties of the present position may be met is urgently required. In the future it will be necessary to utilize to a greater extent the services of the general practitioner, who should be urged to notify cases at the earliest possible stage, and encouraged to refer every case in which there is a suspicion of Tuberculosis to the Tuberculosis Department, and not wait until the disease is fully established. In order to ensure success in this direction there must be available a specially qualified and adequate staff of trained clinicians to whom the medical practitioner can refer when necessary; the general practitioner must be made to feel that the object of the staff is to assist him in the diagnosis and the suggested treatment of any case referred. The second essential is that there should be sufficient institutional accommodation available to ensure the speedy removal to sanatoria or hospitals of cases needing that form of treatment, and to avert the present necessity of having to wait long periods, during which the disease is progressing, and the chances of recovery become more remote. Reference may be made to some few

essential factors in any complete scheme. *Dispensaries*: There should be a sufficient number of centres established to deal with the population of each area. These Dispensaries should be regarded as centres for diagnosis and treatment and for the after care examinations. Each Dispensary should be fully equipped for the purpose of accurate diagnosis, including the installation of X-ray apparatus, and should be adequately staffed. In addition to dealing with the cases directly referred to them, either by the general practitioner or from the Out-patient Departments of the General Hospitals or other agencies, the officers of each Dispensary should seek out and examine all "contact cases"; this part of the work of tuberculosis officers should be developed to the fullest extent. The Dispensary should also be available for the *treatment* of cases, including the administration of tuberculin when considered desirable. Every Dispensary should be opened on certain evenings, so as to enable persons who are working during the day to attend for advice and supervision. *Institutions*: It has been shown that the provisional standard of beds enunciated by the Astor Report is insufficient, and this is particularly the case in view of the increased cases of tuberculosis discovered by examinations of recruits, and arising in consequence of the War. The provision of extra beds is therefore essential, both in regard to sanatoria and for cases requiring surgical treatment. General Hospitals are unable to treat cases of surgical tuberculosis for the prolonged period for which such treatment may be needed. Additional accommodation is urgently required for dealing with the large number of advanced cases requiring long periods of treatment, and which, from a preventive standpoint, are the most important of all. In regard to children, there is still a great shortage of accommodation, with the result that tuberculous children have, in many cases, to be treated in institutions intended for adults and quite unsuited for their special needs. In the future, arrangements should be made to enable children to receive institutional treatment separate from adults, and provision should be made for their education. Convalescent Homes for children who have undergone operative treatment are much needed. At the present time the period of residential treatment afforded for pulmonary tuberculosis is far too short to expect arrest of the disease to be achieved. To secure good and permanent results the period of treatment should be unrestricted. Under existing conditions, all tuberculous cases which have received institutional treatment are at the termination of treatment returned to their homes, where, in many cases, the sanitary conditions are bad and the financial circumstances such that immediately on discharge the patients are obliged to return to full work, with the result that a breakdown is inevitable in very many instances. In order to justify the expenditure of public money, and to secure the permanency of the

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arrest of the disease, provision should be made for the establishment of Industrial or Farm Colonies at or in conjunction with the Sanatorium, so that the patient can be instructed in the Sanatorium in some suitable occupation where the former occupation is considered unsatisfactory, which experience will subsequently assist him in securing adequate work. Provision for the maintenance of the patient's family whilst the patient is undergoing sanatorium treatment should be considered. Further, it might be necessary to supplement the income of the patient for some little time after discharge until full working capacity is reached. *After-care*: The War has caused much delay in the development of arrangements for "after-care" cases. The Dispensaries should be made the centre for the after-care of all cases referred, and in order that it might be seen that the patients are observing hygienic conditions the nurses attached to the Dispensary should make domiciliary visits. Arrangements should be made for nurses to attend the homes of all cases who, in the opinion of the Tuberculosis Officer, require nursing care. After-care Committees should be established for the purpose of assisting patients discharged from an institution to find suitable work, and an official employment and after-care bureau should be formed, with the object of drafting the patient to a suitable occupation upon leaving the Sanatorium. It would also be the object of the Committee to inquire into and, if necessary, to assist in the question of food, clothing, and improvement of the home conditions. Further educational efforts are needed to bring home to the general public the principal facts concerning tuberculosis. *Housing*: Improved housing is an essential requirement, but not as an alternative policy to the provision of Sanatoria, Hospitals, and other measures directed against the spread of the disease. Housing improvements and town-planning schemes must be energetically pressed forward, and the existing congested areas where the incidence of tuberculosis is greatest removed. *Milk Supply*: It is of the greatest importance that every possible care should be exercised in securing a pure milk supply. Frequent samples for bacteriological examination should be taken, and steps should be taken to discover and destroy all infected cattle. The Tuberculosis Order of 1914, which provides for the notification, inspection, and destruction of diseased animals, and also for compensation, should be put into operation again. *Dental Treatment*: The importance of nourishment and the efficient mastication of food, together with the question of oral sepsis, makes it imperative that the teeth and gums of consumptives should be kept in good order, and for this purpose it is essential that a "Dental Clinic" in association with the Dispensary should be established, where extractions, fillings, and the provision of dentures could be undertaken. *Domiciliary Treatment*, including the provision of medical attendance and nursing, and, if necessary, extra nourishment, should be provided.

At present this is only available to the insured population—it should be extended to cover the treatment of the whole population. The whole of these suggestions should be carried out under the supervision of the Medical Officer of Health, as the official chief of the Public Health Department. “The Next Step,” as indicated by the above outline, will be seen to be of the nature of a march, in which many steps must be co-ordinated if progress is to be ensured.

FROM SIR CLIFFORD ALLBUTT,

K.C.B., D.L., M.A., M.D., LL.D., D.SC., F.R.S., F.R.C.P.,

Regius Professor of Physic in the University of Cambridge; Consulting Physician, King Edward VII. Sanatorium, Midhurst.

As to the “Next Step in the Tuberculosis Movement,” I can only harp on the old string, on that on which I have thrummed till I am getting almost as tired of it as my hearers and readers surely are. Again, I pray, what is the use of pouring water into a vessel with a hole in it? The first thing is Prevention; the second, Prevention; and the third, Prevention; but nobody heeds. To confine our attention to mankind: the Sanatorium part of the treatment, highly important as it may be, is but a part. It is wholly individual, and even for the individual a part only. Residence in a Sanatorium is mainly diagnostic and educational. In some cases, it is true, it may effect a cure; in most it cannot pretend to reach this end. Yet, omitting times of pyrexia when the patient may be in bed, too long a residence in a Sanatorium—say for more than three months of an apyrexial period—is, in my opinion, to be deprecated. It is a loose-end kind of life. A move-on must be made—save for the few who can command their own circumstances—to a colony, where life once more becomes serious. Here the term of residence may be indefinite, braced as it is by mental and bodily occupation. Here, indeed, recovery may be attained if the case be curable. But now I return to my old burden—Prevention. Practically, still we shoot all incurable or uncured patients back upon the public—as one might empty a bag of vipers amongst a crowd. Some very unpromising cases, it is true, make unexpected recoveries; no case can offhand be classed as incurable. But after periods of Sanatorium and colony, prognosis becomes pretty definite, and then the incurable presents himself as an unsolved and unwelcome problem. Now, such a one, whether by national or municipal provision, should be secluded, secluded so far as liberty to infect others is concerned. Yet it would be inhuman, as a rule, to consign such patients to institutions; I say “as a rule,” for there might be not a few persons, either homeless or otherwise so far without resources, ready to welcome such a place of nursing and rest. Still, to most it would be a sad fate to be consigned

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to a cloister of the physically hopeless, too often far away from the company and solace of their kindred. It would be easy and cheap to provide cottage homes for small numbers amid their own people, under the supervision of matrons, not necessarily expert nurses but trained to carry out a few plain and strict rules. Some advanced patients, if intelligent persons, might be dealt with even in their homes, if roomy enough, though, with the others, subject to periodical medical inspection. Be this old plan of mine good or bad, is of secondary importance; it is of the first importance to secure that by some plan or other infection be stopped at its sources. But the years go on and we do really nothing!

FROM SIR THOMAS OLIVER,

M.A., M.D., LL.D., D.Sc., F.R.C.P.,

Consulting Physician, Royal Victoria Infirmary, Newcastle-upon-Tyne; Professor of the Practice of Medicine in the College of Medicine, Newcastle-upon-Tyne; Editor of "Dangerous Trades"; Author of "Diseases of Occupation," etc.

I count it to be our first duty to provide for the treatment of our tuberculous sailors and soldiers, and to secure measures for the adequate protection of their families. I do not think there is much to offer the men at present other than one of the two following methods of treatment. Since it is desirable that the tuberculous should be kept away from their homes, in many instances already small enough for the needs of the family, especially if there are young children, the men should be sent to a Sanatorium, or they should be provided for in suitable Farm Colonies. There is no doubt as to the advisability of giving tuberculous soldiers work in the open air, and of keeping them at such agricultural work as they are fitted for as long as is necessary. The unfortunate circumstance, however, is that it is all but impossible to get the invalided men to go on the land. Since the majority of them simply won't go, even although their wives and families are provided for, some other occupational inducements must be held out to them, but what they ought to be I have a difficulty in stating. Forestry might be tried. The question of dealing adequately with disabled tuberculous soldiers is a perplexing portion of the tuberculosis problem, and prompt and effective action is called for.

FROM SIR WILLIAM COLLINS,

K.C.V.O., D.L., J.P., M.D., M.S., B.Sc. (LOND.), F.R.C.S.,

Senior Surgeon, Royal Eye Hospital; Ophthalmic Surgeon to King George's Hospital and Hampstead and North-West London Hospitals, etc.

It is to a betterment of environment, the abolition of back-to-back dwellings and the single-roomed tenement, of the crowded courts and

the festering slum, the provision of ample ramparts of fresh unused air, rather than to tuberculosis and tuberculin dispensaries, even the less exiguous provision of sanatoria, that we must look to for any radical, permanent, and substantial reduction in the prevalence of tuberculous diseases, especially of those forms affecting the pulmonary organs. The housing problem is at the root of the consumption problem.

FROM HENRY R. KENWOOD,

C.M.G., M.B., D.P.H., F.R.S.E.,

Chadwick Professor of Hygiene, University College, London; President Society of Medical Officers of Health; Medical Officer of Health for the Borough of Stoke Newington and to the Bedfordshire County Council.

I hope that in the future the anti-tuberculosis movement is destined to pay an increased regard to that prevention which is better (and cheaper) than cure. The effort towards the cure of consumption must, of course, continue. It is also a preventive measure; but there are other measures of paramount value in prevention which have hitherto been comparatively neglected. I refer to (1) an organized effort to create a greater concern among the masses of the people as to their personal health, and to disseminate the knowledge of how to guard this in the intimate circumstances of their lives, while at home and at work; and (2) suitable provisions for the segregation of those tuberculous cases who are a source of considerable danger to others. I take the view, very strongly, that there is no real solution of the tuberculosis problem which does not embrace the cultivation of initiative that will lead the people to help themselves and to secure and maintain suitable hygienic conditions of living; and that in default of this, costly provisions by the State or municipality (including better housing) can prove of little avail. I also maintain that it is an imperative need that the chief foci of infection, the advanced cases, should receive concentrated attention. I am aware that we have not yet succeeded in demonstrating the real extent to which these advanced cases of "open" phthisis transmit disease. That will come. Meanwhile, we should not allow imperfect statistical inquiries to influence the common-sense conclusion, based on scientific facts, that they sow the seed of much infection in the community.

FROM THEODORE DYKE ACLAND,

M.A., M.D., F.R.C.P.,

Consulting Physician to St. Thomas's Hospital; the Hospital for Consumption and Diseases of the Chest, Brompton; and King Edward VII. Sanatorium, Midhurst.

There can be little doubt that the most pressing and interesting problems for those who are engaged in the study of tuberculosis at the

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present time centre on the needs of the soldier who has broken down in the service of his country with one or other form of tuberculous disease. The fact that there are already some 30,000 or 40,000 of such cases in this country indicates sufficiently the gravity of the present position. Three problems urgently in need of solution stand out prominently from the rest; though there are many lesser ones which will have to be faced if any satisfactory decision is to be reached. The dominant necessities are: (1) Proper care for the tuberculous soldier immediately after his discharge from the Army. This includes the provision of so-called "Sanatorium Treatment," the establishment of Training Colonies, etc. (2) The provision of suitable employment for those in whom tuberculous disease tends to run a favourable course under institutional treatment. (3) The provision of asylums for hopeless and dying cases. A considerable experience of existing organizations for attaining these objects has convinced me that, great as are the needs, comparatively little progress has been made in the attempt to grapple successfully with any one of them, and that the difficulties ahead are greater and more numerous than seems to be generally understood. I am glad to have the opportunity of acknowledging all that has been done by the National Health Committees and the Local Government Board in co-operation with the Ministry of Pensions. Unfortunately, as it seems to me, the problems are greater than the machinery for dealing with them, and it rests with those who know the needs to bring them prominently forward. We cannot rest until the case of the tuberculous soldier has been dealt with as it deserves.

FROM H. J. GAUVAIN,

M.A., M.D., M.CH. (CANTAB.),

Medical Superintendent of the Lord Mayor Treloar Cripples' Hospital and College, Alton, Hants.

The Prime Minister, in his great Manchester speech, laid emphasis on the imperative need for the protection and conservation of child life. Such warning should be taken to heart by those whose duty it is to conduct a successful tuberculosis campaign. The continued neglect of children infected with tuberculosis, or exposed to danger of infection, is one of the most deplorable of the sins of omission of our existing public health service. On humanitarian and economic grounds such short-sightedness is indefensible. It may be ascribed to a complex of causes, amongst which the following may be enumerated: (1) The necessarily restricted treatment available for in-patients in urban hospitals. (2) The paucity of beds in properly equipped and suitably staffed special hospitals devoted to the conservative treatment of surgical tuberculosis. (3) The existence of so-called "Cripples

Homes," which are too often merely refuges for tuberculous cripples, and residence in which prevents the patient receiving prompt and adequate treatment when it could be most successfully applied. (4) The prevailing ignorance as to the possibilities of permanent cure or amelioration under suitable conditions. (5) The unwillingness of county, municipal, and educational authorities to finance adequately such institutions as are prepared to undertake the efficient treatment of tuberculous children. Cases need to be sought out that they may be saved early. Too often the cheapest method of burking responsibility is adopted. In all cases the remedy lies in centralization of control rather than in decentralization. One strong man, acquainted with the needs of tuberculous children, and armed with the necessary authority, can do more than is possible with all the ill-informed and unwieldy committees now in existence. Public feeling needs to be educated in order to dispel the prevailing pessimism and arouse the national conscience to demand effective measures. General hospitals should be reserved for diagnosis, and ought not to be employed for the treatment of the tuberculous. All Cripples' Homes, unless certified as efficient, should be abolished. Tuberculous children should be cared for in adequately staffed and properly equipped large special hospitals, with which should be associated residential schools for pre-tuberculous and convalescent cases, and with technical training centres for the effective training of adolescent cripples in occupations suited to their physical limitations. Discharged patients should have the benefit of effective after-care and guidance. The mortality among young tuberculous subjects when properly treated would be found to drop to a level but little higher than that occurring among ordinary children. Crippled children now doomed to dependency would be converted into wage-earners and active producers. Few investments could yield so handsome a return to the community as the judicious expenditure of public money on the treatment, education, and training of children infected with tuberculosis. While the treatment of the adult consumptive is both necessary and desirable, it is the tuberculous child who offers the most promising prospect of success. A policy which neglects the child is lacking in statesmanship, cannot be defended, and should not be tolerated. The possibility of successful and relatively inexpensive treatment for tuberculous children has been so clearly and unmistakably demonstrated by private enterprise that the energies of all responsible authorities should at once be devoted to the care of the child as the next essential step in the tuberculous movement. Is it too much to hope that this work will engage the earnest attention of the promised Ministry of Health?

FROM S. VERE PEARSON,

M.D., M.R.C.P.,

Resident Medical Superintendent of the Mundesley Sanatorium; Author of
"The State Provision of Sanatoriums."

If the medical profession is the custodian of the nation's health, and if economic causes lie at the root of preventable disease—two sentiments constantly reiterated by doctors nowadays—is it not time that the medical profession went more deeply into the economic problems of sociology and clinical medicine? It is only through the elucidation of these problems that the emancipation of man from such scourges as tuberculosis will be accomplished. Therefore the next step to eradicate this disease should be along a medico-sociological and economic path. While something must be done to cure, if possible, the present batch of tuberculous individuals, and to alleviate the sufferings of those who cannot be cured, there is plenty of scope in the field of economics and sociology for the mind of the doctor, trained in the ways of science, especially in these days of upheaval when issues have to come down, as perhaps never before, to fundamentals, and when old political ties are severed and the ways of past politicians, of whatever party, are largely discredited. Why should not doctors lead the way in demonstrating the causes underlying the low wages, bad housing, and unemployment which are the chief causes of disease and premature death? Such causes ought to be particularly easy to discover during the next few years, and by medical advisers. The province of medicine should overlap more than in the past the province of sociology. Each science can help the other. The value of working out morbidity and mortality rates for tuberculosis in different industries, factories, areas, etc., has been frequently pointed out by Dr. T. D. Lister, and something in this direction has already been accomplished by Dr. E. L. Collis, amongst others, and by Dr. Benjamin Moore, and the Medical Research Committee. Dr. B. G. M. Baskett and others, including workers in the Registrar-General's Office, have laboured to show the effects of public policy and of wages rates on death-rates. It might prove instructive to get morbidity and mortality rates in this and other countries amongst different groups of persons according to the size and nature of the family taxation burdens, or according to the weight of National and other public debts borne. Again, the example of Surg-General W. C. Gorgas, of Panama fame, might be followed in showing the relationship between poverty and the maintenance of private property in land. Sure it is that the ravages of Tuberculosis can never be stemmed by public schemes of the paternal character financed by borrowing, or by methods of taxation having directly bad

effects on the welfare of the community. Such schemes mean the multiplication of governing departments and bureaucracy, and they help to increase rather than to decrease preventable disease.

FROM J. C. SMYTH,

M.R.C.S., L.R.C.P.,

Medical Superintendent of the Hawkmoor Sanatorium of the Devon County Council ; late Chief Tuberculosis Officer for Hampshire.

In almost every home there either is, or has been, an infectious "consumptive," and I think we might safely argue that the great majority of our homes harbour living tubercle bacilli at the present moment. Post-mortem examinations have proved that infection with tubercle may take place at any age from infancy onwards, and it has been shown that something like 15 per cent. of infants under one year, 70 per cent. of children under fourteen, and from 95 to 99 per cent. of adults have been infected at some time. That noticeable illness does not follow infection in the majority of cases is due to the fact that the resisting power of the individual is sufficient to prevent the disease from developing seriously, and more or less quickly to render it inactive. In a certain number of cases the disease develops right away, but the majority of cases of tuberculosis that we encounter clinically are probably due to the reactivation of this original focus, through some cause subsequently arising to lower the resistance of the individual. This has been pretty amply demonstrated by the effects of war hardships on soldiers in the past four years. Pathological examinations have shown that in the great preponderance of cases these primary foci are in the lungs, and due to the inhalation of tubercle bacilli. Six years' experience as a tuberculosis officer, in three different counties, has convinced me of the utter futility of attempting to stop by mere precept the infection of homes by infectious tuberculous patients. In fact, I have serious doubts if it is practically possible, and I would urge that the only logical method is to secure removal of the source of infection. Our present anti-tuberculosis organization is good of its kind, and has done much in the way of alleviation of already existing disease. It has also been useful from an educational standpoint. Up till now, however, I cannot see that it has accomplished much in the way of prevention, or that it is likely to do so on existing lines. The next step in the Anti-Tuberculosis Campaign should undoubtedly be the establishment of complete State control of the tuberculous, which should include a scheme for the compulsory segregation of the infectious, and their maintenance in colonies well separated from the rest of the community. Public opinion has been opposed to this up to now, partly

from sentiment and partly on account of the large cost. The first reason should disappear at once if we realized the injustice to our children and to those yet unborn of the neglect to protect them from this ever-present danger. Beside, it is our duty to the nation, and the expenditure becomes a mere trifle when compared with the present and quite preventable national loss from illness, inefficiency, disablement, and death through tuberculosis. We do not bother about the expense of our asylums, because we are used to them, but the closing of every asylum and the liberation from restraint of every lunatic would be a lesser evil than the present conditions in regard to the tuberculous, entailing as it does the practically certain infection of every individual in the community with tuberculosis. Let us hope that the establishment of a Ministry of Health will ensure that this most essential reform is organized at an early date, and efficiently carried out.

FROM CLAUDE LILLINGSTON,

B.A., M.B., B.C.,

Assistant Medical Officer, Berks and Bucks Sanatorium, Peppard Common, Oxon.

An ominous flaw common to most, if not all, of the pretty schemes for combating tuberculosis in the immediate future is the absence of any participation in their organization and management by the persons most concerned. Yet the consumptive is not invariably a pauper or a lunatic. And when he is neither, he is apt to rebel against the ministrations of his self-imposed "benefactors." The present trend of the tuberculosis campaign (essentially a wise movement), is, I believe, towards the sanatorium colony, an institution so catholic in its functions as to provide all suitable conditions for the consumptive from his first sneeze to his last cough. To it he should be able to come for diagnosis, spending, perhaps, only a week or two if this observation period acquits him of clinically active tuberculosis. And in it he should be able to remain for years, partly as a worker, partly as a patient, happily filling his life with useful avocations, and gratifying at the same time the clamour for the segregation of the advanced consumptive. But if such a colony is to prosper it must enjoy a goodly measure of home rule, and its members must have adequate facilities for ventilating grievances. It must, for example, have powers to keep Bumble under lock and key, and to suppress him altogether if he "bumble" too egregiously. Even prisoners of war and interned civilians are commonly encouraged to regulate their own ménage to a large extent. An enemy makes this wise concession. But an organizer, an administrator officially the friend of the consumptive, is too often jealously afraid of

parting with his powers to the objects of his solicitude. The motto of the sanatorium colony of the future should be: Government of the consumptive, by the consumptive, for the consumptive. Is this Utopian? Surely not.

FROM R. SEPTIMUS WALKER,

M.R.C.S., L.R.C.P., D.P.H.,

Medical Officer, Paddington Tuberculosis Dispensary; Medical Officer,
Kensal House School.

It would appear that most schemes for the eradication of tuberculosis have made little progress, if any, since the beginning of the War; whereas the incidence of the disease owing to the exigencies of war conditions has steadily increased. One sincerely hopes, so far as London is concerned, that the next big push in the crusade will be in the direction of the provision of Hospitals for Advanced Cases and the establishment of Open-air Schools for delicate children. During the nine years that the Paddington Tuberculosis Dispensary has been open, the demand for hospital accommodation for advanced and highly infectious cases has been more and more insistent. These hospitals for all practical purposes must be situated in the immediate neighbourhood of the district for which they serve, so that the patient may be within easy reach of his friends, placed in comfort to himself, and out of danger to his family. Then, again, granting the urgent necessity for the preservation of child-life, it is hardly possible to exaggerate the advantages to be derived from an Open-air School which is in close co-operation with a Dispensary. One of the outstanding features of dispensary work is the large number of children brought up for examination and treatment, and the relative proportion of these found to be tuberculous, and who are, in consequence, unfit for ordinary elementary schools, but who would greatly benefit by attendance at an Open-air School of the Kensal House type. Indeed, any local authority that does not provide such a school I consider is failing in its duty to the State.

ORIGINAL ARTICLES.

A TUBERCULOSIS COLONY IN THE MAKING.

By P. C. VARRIER-JONES,

M.A. (CANTAB), M.R.C.S., L.R.C.P.,

Hon. Medical Officer of the Cambridgeshire Tuberculosis Colony.

THE treatment and after-care of persons suffering from tuberculosis have been the subjects of full discussion in the pages of this journal, and perhaps with one or two exceptions there appears to be general agreement on fundamental principles. Taking, for example, the question of the prevention of tuberculosis, we find that different authorities attach special importance to various issues just as they are related to the particular branch of the problem in which their work lies. "Thus Thorne-Thorne attached considerable importance to the removal of damp and otherwise insanitary houses, of narrow streets and alleys, of back-to-back houses, and of *culs-de-sac*. Dampness and darkness and stagnation of air were, according to him the enemies to be recognized and removed."¹ This was the point of view of the sanitary engineer. We are all agreed that improved social conditions lessen the ravages of tuberculous disease, but we have also to bear in mind that the rich do not enjoy immunity, although they suffer less than the poor. The infectiousness of tuberculosis must be recognized, and more especially the question of "dose" must be considered, nor should we forget the rôle of the carrier. As new facts are brought to light the importance of the carrier assumes large proportions. Place these three facts in their proper order, with general statements as to food supply, bad housing conditions, and the like, and we get a live picture of what is happening to-day.

The Rôle of the Sanatorium.

We often hear that a term of sanatorium treatment serves as an object-lesson to the consumptive as to what should be his mode of life after his discharge from the institution. How often do we find this lesson learned or applied in its entirety? In the first place it is impossible for the consumptive to alter his home conditions so radically that they may be made to conform with the principles laid down and

¹ Cobbett: "Causes of Tuberculosis." Cambridge. 1918.



FIG. 1.—CAMBRIDGESHIRE TUBERCULOSIS COLONY: PAPWORTH HALL.
General view of part of the colony. Each of the colonists has his own shelter. The shelters have been made and fixed by the patients, and each shelter is provided with electric light.



FIG. 2.—CAMBRIDGESHIRE TUBERCULOSIS COLONY: THE CABINET-MAKERS' SHOP.

The workshop has an open front facing south. The windows are composed of glass and canvas, and through the latter free ventilation takes place. The equipment has been done by the patients.

meet the requirements; and when it comes to the modification of working conditions these are entirely beyond his control or powers of amendment. It is not surprising, therefore, that sanatoria have failed to bring about the result aimed at, not that they have failed to give instructions but have failed because from the nature of the case there was and could be no hope of success. The long list of patients who have attempted to follow the instruction given, and have sought to alter their condition, is evidence and record of failure hard to match. Patients seek "employment of a light nature," but they seek in vain. What is left for them but to return to their former original employment? They do return and break down. Whose is the fault and where does it lie? Certainly the fault cannot be attributed to the sanatorium. With one or two notable exceptions that institution does not even pretend to deal with after-care. Rather must it lie at the door of a State which makes no adequate attempt to provide suitable accommodation for a patient who might be treated successfully and makes little or no provision for his welfare after he has had treatment.

The Care of Tuberculous Combatants.

We have a most striking and insistent example of this lack of policy in the method applied to our ex-sailors and soldiers, who having received sanatorium treatment are allowed to struggle on as best they can, in many cases even with a pension considerably reduced—the State in the meantime being so blind that it never realizes how through its inertness the germs of consumption are being disseminated broadcast through the land, and that if employment could be found for these men, the "50-per-centers" under proper hygienic conditions, they would cease to be centres of infection and a source of disease to others. When will the State realize that by means of the pension, a small price to pay for such inestimable benefit, it has power to control, and control very effectually, the spread of the disease? The golden opportunity is fast passing away and soon it will be too late to seize it unless the medical pensions boards apply and apply thoroughly set principles that up to the present they have ignored, or have not been prone to adopt. The more important or main principles may here be briefly outlined; with patience and practice they will ensure the solution of a problem hitherto deemed almost unsolvable. The question of the length of time necessary for successful treatment is being tackled, and the oft-repeated statement that sanatorium treatment has failed because it was not persisted in long enough is being tested.

The Development of a Colony for Tuberculous Subjects.

The condition of patients at Papworth Hall who have completed nine, twelve, fourteen, sixteen, and eighteen months, has been carefully noted and studied. The statement that patients will not undergo



FIG. 3.—CAMBRIDGESHIRE TUBERCULOSIS COLONY: THE CARPENTRY AND JOINERS' SHOP.

The shelters used by the patients were made by the patients in this shop.



FIG. 4.—CAMBRIDGESHIRE TUBERCULOSIS COLONY: MODEL COTTAGES IN THE VILLAGE.

These houses form part of the colony community, and are occupied by consumptives who are employed in the colony workshops.

prolonged treatment is being put to the test, and in so far as this statement contained a large element of truth the reasons are becoming clear. The predominant factor is the provision of interesting and suitable work, a second is the payment of a wage or bonus for work done. It is obviously not only inexpedient but wrong to turn patients into "servants" of the institution. To reduce the cost of running an institution by employing cheap consumptive labour is not only wrong in principle but works badly in practice and is certainly no economy in the long run. Far better is it to organize definite trades, in properly constructed and well-lighted and ventilated workshops, each trade being a definite unit run on business lines. Then instead of the relationship between the institution and the patient being that of master and servant, it is that of employer and employee—a very different matter from the patient's point of view, both physically and morally. With well-regulated, at first short but gradually increased hours of work and with suitable environment the patient becomes less self-centred and rapidly ceases to be so engrossed in his "feelings" and his "symptoms"; rather he attains a growing confidence in his strength and in the improvement of his position. Under these conditions and with these resources it is no longer necessary to select early cases only for treatment. It must be the general experience of all, that even in ordinary surroundings many "middle cases" carry on tolerably well, when a philanthropic employer will allow a day off now and then, or enable a patient to rest for a week or two because of indisposition. Such cases under the Colony Scheme fare remarkably well and are quite capable of doing a considerable amount of work. They are infectious cases, no doubt, and nothing should please us more, from a public health point of view, than that they may be able to work under satisfactory conditions and away from crowded cities and towns. At this juncture it is specially desirable that these cases be not neglected, as it is gradually being realized that nearly all discharged tuberculous soldiers are drawn from this class, and that in taking charge of them we are not only enabling them to live the best possible life but are cutting off a huge source of infection from the general community. Early cases, and the earlier the better, are naturally more amenable to treatment, and the best possible method of inducing the early case to undergo such prolonged treatment with a contented mind is undoubtedly to provide him with definite constructive work. Hitherto the work offered in most institutions has been of the pick-and-shovel type, gardening, various light jobs about the place. Efforts have been made to include farm work, but as far as the writer is aware no definite statistics on this point are forthcoming, and no statement of the market value of such work has been made, the value of the work done usually being calculated on the basis of so much reduction in the cost of running



FIG. 5.—CAMBRIDGESHIRE TUBERCULOSIS COLONY: THE HOSPITAL.
In the hospital advanced cases receive appropriate treatment.



FIG. 6.—CAMBRIDGESHIRE TUBERCULOSIS COLONY: THE NURSES' HOME.
The headquarters of the nurses are situated in Papworth Hall, in the village of Papworth.

the institution. All this is obviously wrong, for how can a consumptive, probably a 65 per cent. man, compete with the labour of a 100 per cent. man plus machinery? It cannot be done. It is an easy matter to give patients (early cases) hard manual work, during the last month of a stay of three months at a sanatorium, but this strenuous exertion cannot be kept up and the inevitable breakdown is the result; and this is what happens. It is distressing to see how quickly the disease advances on the return of the patient to his home and work. It is difficult for the busy physician to follow the case and to note that such manual labour cannot be kept up for any length of time, and we now know that three months is a term certainly insufficient in which to observe the after-course and results of such treatment.

Obviously it is not necessary for the purpose of earning a livelihood to undertake strenuous physical work, but it is essential that, if possible, the patient should eventually earn his own living. The key to the whole situation seems to be that the necessary machinery should be provided and installed in properly designed and well-ventilated workshops, and that the output of work done by patients thus assisted should be estimated. An interesting example of the use of machinery as a proper and effective aid to the muscular work of patients is the following: With wood planed by hand, there can be turned out from the joinery workshops at the Colony one complete shelter in two weeks; with machine-planed wood the output was more than doubled. Labour depends on production for its wages. If the production can be speeded up—and the machine is the means of speeding up—then our 50 per cent. and 65 per cent. man has a better chance of competing in the open market, and he earns a wage which, supplemented by a pension, enables him to live decently and with the least risk of a breakdown. It is only the 50 per cent. loss that has to be made up by the State, and the State must have a guarantee that it is receiving value for its money. Under the Colony scheme it does receive full value, for not only is the patient's labour, even if only 50 per cent., remunerative, but the outside world is freed from a dangerous source of infection. Moreover, in the industrial scheme now in operation it is possible to determine with a considerable degree of accuracy the value of consumptive labour. The industry is run on strict commercial lines, the articles made are priced as to materials used, time spent on making, and then a margin allowed for incidental expenses, and it is found that the cost and return for the selling price compares very favourably with that of the open market. In the boot-repairing department, where all the patients working are "middle" cases, there is actual competition with the open market, and yet the business shows such a profit that adequate wages can be paid. Taking into consideration the limited number of working hours, although the rate of remuneration is that of

the standard for the district, the total wages of course fall short of that of a man who works full time, but not by any means so far as was anticipated, and in the case of a discharged soldier this difference can be made up by the pension to Lord Leverhulme's ideal—a six-hour day and an income equal to a living wage. These, very briefly, are the experiments which are being worked out at Papworth Colony, and the results promise to be interesting and extremely instructive. Consumptive labour can under special conditions be employed without detriment to the health of the patients. It is for us to call into being these special conditions, and thus at one and the same time benefit the patient and protect the general public. With this ideal to work to, the entire village of Papworth Everard has now been acquired by the Colony. Colonists already reside in the model cottages in the village, carrying on their trades and so far maintaining their health. The poultry farm worked entirely by Colonists is growing apace. A joinery shop finds employment in the making of shelters, hen coops, and poultry appliances. From a cabinet-maker's shop a considerable amount of furniture has been turned out and orders from the outside world are now received. The wages for the work done in these departments are paid out of the receipts from the sale of the goods manufactured. In the boot-repairing department, indeed, open competition with the outside world has resulted in a most satisfactory trading account.

The Colony at Papworth Hall has its Hospital for advanced cases, and veranda wards for less severe cases, and it is found that these in no way interfere with the comfort or progress of the early cases, who are housed in shelters in the colony quarters. The work of the colony is now being extended, and recently a second country house has been acquired in which women and children may be treated. With the opening and completion of this section of the colony the scheme will be complete. The 350 acres of land also acquired will be laid out as small holdings, *the holders receiving assistance from the central farm as need arises. Only with this assistance available at a moment's notice is it possible for a consumptive to carry on a small-holding (preferably fruit), as a slight relapse may occur at any time.* In all things a sound co-operative basis is aimed at, and the colony runs its own store, which is now self-supporting.

We have sketched the labour side—the activities of the colony—rather than the hospital side, for it is on the lines of INDUSTRIES FOR CONSUMPTIVES that progress appears to be capable of being made. Space forbids an elaborate description of the personnel of such a colony. Suffice it to say that the chief desideratum in the staff, each member of which must be imbued with the spirit of adventure and research—especially into the psychology of the consumptive worker—is personality.

THE EXAMINATION OF SPUTUM FOR TUBERCLE BACILLI.

By GODFREY BROOKES DIXON,

M.R.C.S., L.R.C.P., L.S.A.,

Chief Tuberculosis Officer, Birmingham; Medical Superintendent, City
Sanatorium, Yardley Road.

IN the investigation of every case of pulmonary disease which presents sputum, its microscopical examination is a necessity which it would be imprudent to omit. In the majority of these cases it is expedient to examine the sputum to ascertain if tubercle bacilli are present; and when a diagnosis of pulmonary tuberculosis has previously been made, it is important for the purposes of treatment, prognosis, and prevention, to ascertain whether tubercle bacilli are being expectorated or not.

As a rule, one negative examination is not only valueless, it may be misleading, and the search for tubercle bacilli should be continued so long as there is any sputum, whenever the physical signs and symptoms are suggestive of tuberculosis. For prognostic purposes it is well to remember that some cases of fatal tuberculosis frequently present no bacilli in the sputum, as, for instance, caseous pneumonia and acute miliary tuberculosis; on the other hand, in some cases the bacilli are present even before physical signs are discernible.¹

Methods of Staining Tubercle Bacilli.

The Ziehl-Neelsen method of staining tubercle bacilli is the one most commonly used, and it is said to be the best by those who have had a large experience of other methods. Macalister² states that Much's method is unsuitable for routine use, as other organisms in addition to the tubercle bacilli absorb the stain. He thinks that Herman's method is a useful one when it is desired to bring out spore-like granules and branching forms. It consists of 3 per cent. crystal violet in 95 per cent. alcohol, mixed with 3 volumes of 1 per cent. ammonium carbonate as mordant; after staining and washing, the slide is treated with 10 per cent. nitric acid, then with absolute alcohol, and finally counterstained with 3 per cent. chrysoidin.

At present we are forced to acknowledge that repeated negative results from the examination of sputum after staining alone cannot in every case be accepted as conclusive evidence of the absence of

¹ See "Clinical Diagnosis," by Emerson. 2nd Edition. London.

² *British Medical Journal*, 1912, ii. 412.

tubercle bacilli ; and it is essential for accuracy of results to adopt some process in addition to staining, upon which greater reliance can be placed, and by means of which the bacilli can be more readily detected if present. With this end in view, it has become advisable in tuberculosis work to use freely one of the various concentration process.

In the laboratory at the City Sanatorium, Yardley Road, Birmingham, the sputum of all patients who expectorate is primarily examined after staining by the Ziehl-Neelsen method alone, and if a negative result is obtained the sputum is then treated by the concentration method of Ellerman and Erlandsen, and examined weekly when sputum is present until tubercle bacilli are demonstrated, or until treatment terminates.

The Conduct of Concentration Processes.

If after staining the sputum no bacilli are found at the first examination and tuberculosis is suspected, Emery¹ recommends the addition of 1 or 2 drachms of sputum to about 4 ounces of a 1 in 20 solution of carbolic acid, which is to be well shaken at intervals during a few hours. The resulting milky solution is then poured into a conical glass and allowed to stand for twelve hours, when a deposit will form ; some of this is removed and spread in a thin film on a slide, and then dried, fixed, and stained. The advantages of this method, he considers, are that mucin and albuminous materials are coagulated and broken up, and the bacilli evenly distributed throughout the film.

The antiformin method of treating sputum in an examination for tubercle bacilli has been extolled by various writers from time to time, and W. J. Matthews² considers that all negative results obtained without its use should be considered as absolutely worthless. He recommends the shaking together of equal parts of antiformin and sputum in a large test-tube until the sputum is dissolved and a homogeneous mixture is secured ; five volumes of water are added, and the mixture is shaken further. Equal volumes of acetone ether are then added, and the test tube is again well shaken. In a short time a clouded ring appears below the ether, the collection of which is made by means of a pipette or a platinum loop, and from this material the slides are prepared. Matthews records that by the use of antiformin he has found tubercle bacilli in 10 per cent. of films which had given negative results by all other methods, but he does not, however, state the total number of examinations upon which this percentage of positive results was obtained.

W. S. Davis³ considers the antiformin method not one of the best, because, as he says, the results can be influenced by the method

¹ See "Clinical Bacteriology and Hæmatology," by Emery. London : H. K. Lewis. 1917.

² *British Journal of Tuberculosis*, vol. ix., No. 4.

³ Davis : *Medical Record*, 1913, ii. 1120.

of preparation of the test solution, some containing a higher amount of available chlorine than others. He prefers treating the sputum with an equal volume of a saturated aqueous solution of common salt, shaking the resultant mixture well, and allowing it to stand for six hours; the surface is then skimmed with a platinum loop and a smear made, and the slide is stained for twelve hours in cold carbol-fuchsin, followed by a slight rinse in tap-water, and fifteen seconds decolorization in acid-alcohol. Finally, the method of counter-staining is adopted. He claims that this process possesses an accuracy of 99 per cent.

A further method of treating sputum prior to staining is that described by Ellerman and Erlandsen: it consists of mixing one volume of sputum with half a volume of 0.6 per cent. solution of sodium carbonate in a corked glass, and placing it in the incubator at 37° C. for a period of twenty-four hours. The supernatant fluid is then poured off and the remainder centrifuged. To the deposit obtained four volumes of 0.25 per cent. sodium hydrate solution are added, mixed well, and the fluid is boiled. The resulting solution is then centrifuged, and from the deposit obtained films are made and stained. It is claimed for this process that the film adheres readily to the slide, and in addition, it is said to be possible to demonstrate the presence of tubercle bacilli where other sedimentation processes fail.

The advantage, or the necessity of adopting some concentration process before staining sputum for the detection of tubercle bacilli, is shown by the figures in the following table, which are the results of work done at the Yardley Road Sanatorium:

Number of Sputa dealt with.	T.B. - after Staining once by Ziehl-Neelsen method alone.	T.B. + after Treatment by the Ellerman and Erlandsen method.
945	945	205, or 21.6 per cent.

The figures below deal with the same series of cases, and give in detail the number of sedimentation processes which had to be undertaken in each case before tubercle bacilli could be demonstrated:

TUBERCLE BACILLI DEMONSTRATED BY ELLERMAN AND ERLANDSEN METHOD.

After first sedimentation	...	...	...	...	= 146 cases.
After second	"	...	...	...	= 38 "
After third	"	...	...	...	= 10 "
After fourth	"	...	...	...	= 5 "
After fifth	"	...	...	...	= 3 "
After sixth	"	...	...	...	= 2 "
After sixteenth	"	...	...	...	= 1 "
Total	...	...	...	...	205 cases.

General Conclusions.

It is obvious that, for accuracy of results in the examination of sputum for tubercle bacilli, the use of a concentration process of some description is important; without such assistance but little reliance can be placed upon the negative results. Most of the processes described are so straightforward that their intricacy could never be pleaded as an excuse for not using them, and it is questionable whether more time is occupied in using them than would be the case if repeated stainings had to be made before a positive result were obtained.

I have shown that the Ellerman and Erlandsen method in a series of 945 instances gave 205, or 21 per cent. of positive results which were not demonstrated after one staining alone; and of the 205 positive results so obtained, 146, or 71 per cent., were obtained after the first concentration process, which should be justification sufficient for the extra work involved, if any.

DISPENSARY SUPERVISION IN PULMONARY TUBERCULOSIS.

By GEORGE JESSEL,

M.A., M.D., D.P.H.,

Tuberculosis Officer to the Lancashire County Council; Tuberculosis Officer,
Wigan, and Medical Adviser, Wigan Insurance Committee.

THE interim report of the Departmental Committee on Tuberculosis contains the following passage: "It should, however, be borne in mind that a short stay in an institution in which the patient may be educated, followed by a course of home treatment in shelters, etc., under close supervision, is a form of sanatorium treatment which has certain advantages, and which may be successfully adopted in a large number of cases." Home treatment was, prior to this report, the principal, if not the only, form of treatment in the great majority of cases, but the element of close supervision was probably rarely exercised except as regards the middle and upper classes. Furthermore, there is reason to believe that the precise manner in which this supervision should be exercised was not generally understood, even in cases where the family doctor was able to enforce a discipline which is admittedly irksome to many patients. The aim of this paper is to indicate in some degree the value, both to patients and doctor, of systematic dispensary supervision as exercised in a centre like Wigan, and over an area of about forty square miles, and during a period of over five years.

There are still some who condemn home treatment as dangerous and impossible, and figures are from time to time brought forward which are intended to prove this conclusion. Thus, Holden has recorded a series of 1,956 patients, of whom 794 gave a definite history of tuberculosis occurring amongst 1,081 intimate members;¹ and more recently² he has published additional figures, the purport of which is to show that home treatment is a menace to the other inmates of the house. Holden's figures, however, as they stand by no means make out a case against home treatment. Alleged secondary cases occurred in about two-fifths of his first series, and the alleged secondary infection affected only one and one-third of a family out of the average four and a half. In addition, Holden apparently ignores all the other factors—viz., second cases occurring from the same source as the original case, or from quite other sources, as the result of insufficient or improper feeding, insanitary homes, overwork, intemperance, individual susceptibility, etc. Furthermore, the total number of individuals (suffering and non-suffering) in the families concerned is omitted. I consider that Holden's figures are inconclusive and of but little scientific value. Even if they could stand the test of close examination, it would still be necessary to show that in the families concerned that element of close supervision, without which home treatment is admittedly often useless and dangerous, was present. In the experience of the writer, secondary cases in the same home are by no means common where supervision is exercised in the home. This, indeed, is what would be expected in the light of modern knowledge. Apart from individual cases of unusual susceptibility, massive infection and lowered resistance are the principal factors in the causation of secondary tuberculosis. Dispensary supervision, if properly applied, will usually effectively counteract these elements.

Although no case has been made out against home treatment on the ground of danger, the question may fairly be asked whether there is any proof that persons suffering from phthisis can have their immediate surroundings and way of living brought into any reasonable degree of accord with sanatorium practice, this being, of course, the aim of home treatment. Sir William Osler has tersely summed up the essentials of treatment as "education, control, and a rigid regimen," and it is essentially in these directions that the efforts of the general practitioner can be assisted at and in connection with the dispensaries. The problem of sleeping accommodation is often a very difficult one, and it is usual to find the patient in bed in the kitchen at the first visit of the dispensary staff after a case has been notified.

Patients are often found to be very careless with their sputum. It

¹ Holden: *Medical Officer*, February 28, 1914.

² Holden: *British Journal of Tuberculosis*, April, 1918.

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is necessary to conclude either that clear and definite instructions on these and kindred topics have not been given by the medical attendant, or that, if given, they have not been enforced. The improvements that were effected by three of the dispensary nurses of the Lancashire County Council in 1915 with regard to thirty-six new cases have already been published.¹ They may be summarized as follows :

	On Nurse's First Visit.	On Nurse's Last Visit.
Separate bedroom— <i>i.e.</i> , complete isolation ...	157, or 43·49 per cent.	262, or 72·57 per cent.
Separate bed, not separate bedroom— <i>i.e.</i> , partial isolation ...	57, or 15·78 per cent.	53, or 14·68 per cent.
Not satisfactorily isolated ...	147, or 40·72 per cent.	46, or 12·74 per cent.
Total cases ...	361	361

That this was no spasmodic effort is shown by the results obtained by four dispensary nurses in the Wigan area during 1916 and 1917 :

	1916.		1917.	
	Number.	Per Cent.	Number.	Per Cent.
Separate bedroom— <i>i.e.</i> , complete isolation ...	799	68·8	1,150	70·26
Separate bed, but not separate bedroom— <i>i.e.</i> , partial isolation ...	186	15·9	286	17·7
Not satisfactorily isolated ...	179	15·3	179	11·08
Total cases ...	1,164	—	1,615	—

Thus, in 1917, complete isolation was obtained in over 70 per cent. of 1,615 cases of phthisis occurring in an average industrial area of Lancashire, while partial isolation was obtained in an additional 18 per cent. It is clear that the dispensary nurses have accomplished a great work as the result of tact and perseverance. Home treatment is thus possible and safe in about 70 per cent. of cases occurring in the industrial areas of Lancashire, at any rate ; and the remaining 11 to 15 per cent. which were not satisfactorily isolated is a measure of the need for isolation and treatment in hospitals, as distinct from sanatoriums.

Dispensary supervision is largely exercised through the frequent regular and periodic visits of the nurses to patients' homes. These visits vary in frequency according to the urgency of the need, but cases

¹ Jessel : *British Journal of Tuberculosis*, April, 1916.

with active disease are visited without notice at least once a month, and sometimes much more frequently. During 1916 the five dispensary nurses paid 12,308 visits to 2,306 cases of tuberculosis (all forms, many quiescent or arrested), and during 1917, 13,179 visits to 2,722 cases. This, however, is by no means the only way in which dispensary supervision is exercised. All cases with active disease are examined by me as Tuberculosis (Consulting) Officer, once in two to three months, either at home or at the dispensary. When visits are paid to the home, it is possible to see that the supervision is being properly exercised, and that the advice and instructions given are being carried out. The dispensary nurses report upon each case after every visit, and any difficulties that may be met with can then be conveniently discussed. Patients who are not working, and who are fit and able to attend the dispensaries, are encouraged to do so every fortnight, to get weighed and to have their temperature records checked. The supervision is not confined to preventive measures, but also concerned with regard to treatment. Thus, in addition to the provision of paper handkerchiefs and bags for sputum, thermometers and record cards are provided for suitable patients, and the large number of properly kept temperature records is remarkable. Dispensary supervision is not only exercised by means of direct access to the patients, there is close association with the general practitioners, and every effort is made to work in close accord with them. They receive intimation of place and time of each medical examination, and some regularly attend in consultation, in spite of the strain of existing war-time circumstances, otherwise a letter is sent whenever there is anything to communicate on either side. In addition to the above, the six care committees are of the greatest value, as has been elsewhere described,¹ in rendering home treatment possible by the provision of nourishments, clothing, bedsteads, bedding, etc., and many of the cases are visited by a member of the committee. Patients thus have additional encouragement and inducement to carry out their treatment properly. There is a growing list of patients receiving dispensary supervision only—*i.e.*, patients whose disease is arrested or quiescent. These are kept under surveillance by occasional visits or communications.

It is clear that the success of dispensary supervision depends upon the close attention to detail that is given with regard to each individual case. Every patient needs special consideration, and must be studied in relation to his environment. Thus, Dr. Pratt, of Boston, U.S.A., has achieved no little success by means of close supervision exercised in connection with his "Tuberculosis Class." Thus, during the years 1906 to 1913, 165 patients were discharged, thirty-five of whom had

¹ Jessel: *Medical Officer*, August 28, 1915.

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tubercle bacilli in their sputum at some stage of the illness. In 1915, 58·2 per cent. were well and working, free from all symptoms of disease. Of the thirty-five cases in which tubercle bacilli were found, in 1915, 74·3 per cent. were well and working.

In the experience of the writer, efficient dispensary supervision has resulted in a considerable measure of success, in spite of the fact that a large proportion of the cases come under notice when already in an advanced stage of disease. There is every reason to believe that, with earlier diagnosis and notification, home treatment under close supervision, such as apparently can usually only be obtained through the dispensary organization, will fully justify on a large scale the conclusions of the Departmental Committee.

ASSOCIATIONS AND INSTITUTIONS.

THE TUBERCULOSIS SOCIETY.

THIS body was founded in 1911 for the study and discussion of all subjects relating to the control and eradication of tuberculosis. Its membership is open to all members of the medical profession interested in tuberculosis, and tuberculosis officers to County Councils, County and Metropolitan Borough Councils and Town Councils, medical officers of sanatoria, farm colonies for the tuberculous, and superintendents of tuberculosis hospitals are particularly invited to join. Meetings of the Society are held from time to time in the house of the Royal Society of Medicine, 1, Wimpole Street, London, W. 1. The tuberculosis service consists of medical men and women engaged in the diagnosis, treatment, and prevention of tuberculosis under public organization and administration. Recent legislation concerning tuberculosis implies that tuberculosis officers should be specialists. The Departmental Committee on Tuberculosis in 1913 recommended that tuberculosis officers should have special training and experience. It is most desirable that those engaged in work directed to the prevention and arrest of tuberculosis should be united by common study and interests, and have opportunities of meeting and joining in the consideration of questions, pathological, clinical, and administrative, which relate to the tuberculosis problem. The Society seeks to secure a satisfactory status and security of tenure for all tuberculosis officers. Without this it will be difficult to induce the best class of men and women to enter a service for which years of training are required. The service must be mainly clinical in its duties, and does not in the ordinary course lead to administrative posts in the public health service. A claim for such status was approved by the Tuberculosis Society on June 10, 1914, and was forwarded to the Treasury and to the Local Government Board. The present officers of the Society are: Hon. Presidents, Sir Robert W. Philip, M.D., F.R.C.P.E., and Sir William Osler, Bart., M.D., F.R.C.P.; President, Halliday G. Sutherland, M.D.; Hon. Treasurer, A. W. Griffin, M.D.; Hon. Secretary, R. S. Walker, M.R.C.S., L.R.C.P., D.P.H., 20, Talbot Road, London, W. 2, to whom application should be made for election to the membership.

THE BERKS AND BUCKS JOINT SANATORIUM.

IN 1914 a Joint Committee of the two County Councils of Berkshire and Buckinghamshire acquired the Kingwood and Maitland Sanatoria at Peppard Common, Oxon. These had been established in 1899. The whole of the existing staff was taken over. The institution is now conducted as one of the "links" in the chain of arrangements.

for the public treatment of tuberculosis, and patients come from one or other of the two administrative areas. The property comprises a freehold estate of 60 acres, upon which are three separate establishments—one for men and boys, another for women, and the third for girls. The accommodation taken over by the Committee was for 90 patients, but 14 additional beds have recently been added making now available provision for 104 patients allotted as follows: Men, 34; women, 20; and children, 50. The sanatorium is intended primarily for cases for whom there is a reasonable prospect of improvement by a term of treatment. Provision is made elsewhere for advanced cases. The regime is upon lines generally accepted, an even life with good food and milk, regulated hours of rest, graduated exercise, and suitable occupations carried on in the open air as far as possible. One of the great advantages of the place is its large gardens and orchards (covering over 5 acres), where plenty of work can always be found for all patients who have reached the working stage. For the child patients there is a Sanatorium School which is recognized by the Board of Education. Many of the children have been "excluded" by the School Medical Officers from the regular schools and would have no education at all if such an open-air school was not available. Here they count as "full attendance" scholars in a school which would hold its own so far as educational results go with any ordinary school. The more weakly patients, both men and women, attend handicraft classes conducted by a trained resident instructor. In suitable cases special treatment, such as the induction of a pneumo-thorax, is carried out. The usual period of treatment is about 3 months for adults and 6 months for children, and when each patient leaves, a medical report is sent to the Tuberculosis Officer, and to the patient's own private doctor; so that the case may not be lost sight of, but be kept under observation with a view to further treatment should it become necessary. When the County Councils took over the institution it was intended to develop the work particularly amongst the children. It was also hoped that training for future open-air employment of the men would be possible, and plans for extensive alterations were prepared; but the war has delayed developments. With the advent of peace it is expected that proper public provision for the treatment of the tuberculous will be one of the first tasks of "reconstruction." There is nothing more important for the future welfare of this country than the raising of the physical fitness of the people. Dr. Esther Carling is the Chief Medical Officer of the sanatorium. The nearest station is Reading, six miles distant.

TUBERCULOSIS officers and others desiring information regarding Associations and Institutions dealing with tuberculosis and tuberculous cases would do well to procure as reference works the two following volumes: "The Tuberculosis Year-Book and Sanatoria Annual" and "The Year-Book of Open-Air Schools and Children's Sanatoria." They are published by Messrs. John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, London, W. 1, price 7s. 6d. net each volume.

NOTICES OF BOOKS.

A CLEAN MILK SUPPLY.

THE Milk Problem is one which appeals to all students of tuberculosis and every medical practitioner dealing with tuberculous cases. According to many experts, milk is a common source of tuberculous disease, especially in early life. Tubercle bacilli of bovine type would seem to be met with in from 10 to 30 per cent. of samples of milk submitted to bacteriological examination. But milk is one of the most valued agents used in the nourishment of tuberculous and tuberculously disposed cases. On all grounds it is essential that greater attention should be devoted to a study of means for the provision of a clean, rich, non-tuberculous, adequate milk supply. Professor Sheridan Delépine has prepared a particularly valuable report on this subject which we commend to the study of superintendents of sanatoria, tuberculosis officers, and all other medical advisers.¹ Dr. Delépine states in his introduction that he is of opinion that farmers and dairymen generally are unacquainted with the precautions which have to be adopted in order to produce clean, uncontaminated milk, and that the existing unsatisfactory state of our milk supply is not, as a rule, due to wilful neglect. Mere condemnation is not likely to result in certain or rapid improvement. Detailed instruction is necessary. Such enlightenment this report provides. An account is given of the way in which cow's milk is contaminated at the time of collection and in the course of distribution. A valuable comparison is made between the existing state of things, and the improvements resulting from the adoption of better methods. The methods used in the examination of cow's milk are fully described. Data are presented regarding the state of the Manchester Milk Supply. The report is a very able and exhaustive one and should be studied in its entirety. The numerous illustrations add much to its practical value.

MILK AND PUBLIC HEALTH.

Medical officers and others responsible for the chemical and bacteriological examination of milk for public health purposes will welcome the serviceable handbook prepared by Mr. Joseph Race.² The manual brings together in convenient array the essential facts

¹ "On Conditions Necessary to obtain a Clean Milk Supply, and on Methods of Testing Cow's Milk in Relation to Standards of Cleanness." A Report submitted to the Sub-Committee on Clean Milk of the Sanitary Committee of the Manchester City Council. Pp. 109. With twelve Plates. Published by the Corporation of Manchester. 1918.

² "The Examination of Milk for Public Health Purposes." By Joseph Race, F.I.C., City Bacteriologist and Food Examiner, Ottawa; Chairman of Committee on Standard Methods of Analysis, Canadian Public Health Association; and Member of Committee on Municipal Food Administration, American Public Health Association. Pp. vi+224. New York: John Wiley and Sons, Inc. London: Chapman and Hall, Ltd. 1919.

with which every student of the subject should be acquainted. The book opens with a concise description of constituents of milk and its normal composition. The methods of chemical and bacteriological examinations are then dealt with in detail. Special chapters are devoted to the consideration of excremental and pathogenic organisms. With regard to the detection of tuberculous milk, both the microscopic and inoculative methods are described. It is also pointed out that milk occasionally contains organisms, capable of producing chronic lesions which may simulate those produced by the tubercle bacillus. The chief differences between the human and bovine type of the *Bacillus tuberculosis* are conveniently set forth in tabular form. The whole work is a reliable, up-to-date, concentrated handbook, and to each chapter is added a helpful list of bibliographical references.

WORKS FOR MEDICAL ADVISERS.

Tuberculosis is but one of the many diseases threatening personal well-being, public health, and the general welfare of the community, and it is essential that tuberculosis officers and others dealing specially with consumptives and other tuberculous subjects should make a point of keeping themselves well acquainted with all aspects of personal and public hygiene. A very useful manual has just reached us from India, written by an Indian medical officer.¹ It has been prepared primarily for Indian medical students, but it should be of service to medical practitioners and those called upon to advise and lecture on the principles and practice of public health in all parts of the British Empire. The book is of necessity in great measure a compilation, but the materials have been judiciously collected and effectively presented. For those Englishmen whose duties require residence in India the book will be of particular service. There are very full sections on malaria, plague, cholera, and dysentery. We hope that in the next edition greater space will be allowed for the consideration of tuberculosis, particularly in regard to its prevention and arrest in India. The statement is made that tuberculosis of late has been on the increase in India. "It is very rare in the sandy deserts of Rajputana, but lately cases have been noticed there also, possibly owing to the people of that province migrating to big cities of Calcutta and Bombay, being infected there, and then carrying infection to their own villages and towns on account of facilities in railway travelling." The manual contains many interesting illustrations, and those relating to actual conditions existing in India might well be multiplied in the next edition.

A valuable monograph on Human Intestinal Protozoa has recently been prepared by Lieutenant-Colonel C. M. Wenyon and Captain

¹ "Elements of Hygiene and Public Health for the Use of Medical Students and Practitioners." By Rai Bahadur Jaising P. Modi, L.R.C.P. S. (Edin.); L.F.P.S. (Glasgow); Lecturer on Medical Jurisprudence, Hygiene, Chemistry, and Physics, Agra Medical School; formerly Special Health Officer, Hardwar. With an Introduction by Lieutenant-Colonel E. J. O'Meara, F.R.C.S. (Eng.), D.P.H. (Camb.), I.M.S., Principal Agra Medical School. Pp. xv+337. With Illustrations. Calcutta: Butterworth and Co. (India), Ltd., 6, Hastings Street; London: Butterworth and Co., 4, Bell Yard, Temple Bar, W.C. 2. 1918. Price 4 rupees, or 5s. 6d. net.

F. W. O'Connor, and issued from the Wellcome Bureau of Scientific Research, of which Dr. Andrew Balfour, C.M.G., is Director-in-Chief.¹ It is a work which deserves to be studied by all having to advise in regard to the treatment of soldiers and others returning from the East. We commend it to the consideration of tuberculosis officers and medical superintendents of sanatoria, who in dealing with tuberculosis will do well to remember the possibility of other parasitic invasions. The substance of the work is effectively presented in four main parts, dealing respectively with the Incidence of Protozoal Infections amongst British Troops and Natives in Egypt, with special reference to the Carrier Problem of Amœbic Dysentery; the Character and Diagnosis of the Various Intestinal Protozoa of Man in Egypt, with a description of three new forms; Treatment of *E. histolytica* and other Protozoal Infections of the Human Intestine; and Experimental Work with the Human Intestinal Protozoa, their Carriage by House-Flies, and the Resistance of their Cysts to Disinfectant and other Agents. The concluding part appears as an appendix, and consists of charts giving the history of the cases treated for *E. histolytica* or Flagellate Infections. The monograph is excellently illustrated.

Colonel G. T. K. Maurice, C.M.G., has reprinted his valuable articles on a State Medical Service in brochure form, and we advise all medical practitioners to study this clear, suggestive and helpful exposition of a problem of far-reaching importance and exceptional complexity.²

The well-known firm of the Abdulla Cigarette Company have favoured us with a copy of their fine wall-almanack.³ It is admirably illustrated by black-and-white and coloured pictures, the frontispiece being by Mr. Charles E. Brock, R.I. The almanack is being sold for the benefit of the British Red Cross. It should have a place in every sanatorium.

¹ "Human Intestinal Protozoa in the Near East: An Inquiry into Some Problems affecting the Spread and Incidence of Intestinal Infections of British Troops and Natives in the Near East, with Special Reference to the Carrier Question, Diagnosis and Treatment of Amœbic Dysentery, and an Account of Three New Human Intestinal Protozoa" (conducted under the auspices of the Medical Advisory Committee, M.E.F., January to August, 1916). By Temporary Lieutenant-Colonel C. M. Wenyon, B.Sc., M.B., B.S., R.A.M.C.; Member of the Medical Advisory Committee; Director of Research in the Tropics to the Wellcome Bureau of Scientific Research; and Temporary Captain F. W. O'Connor, M.R.C.S., L.R.C.P., R.A.M.C. Pp. 218, with plates, figures, and tables. Published for the Wellcome Bureau of Scientific Research, 10, Henrietta Street, Cavendish Square, W. 1, by John Bale, Sons and Danielsson, Ltd., 83-91, Great Titchfield Street, W. 1. 1917.

² "A Vision of State Medical Service," by Colonel G. T. K. Maurice, C.M.G. Reprinted from *The Hospital*, November 9 and 16, 1918. London: The Scientific Press, Ltd., *The Hospital* Building, 28 and 28, Southampton Street, Strand, W.C. 1918. Price 1s. net.

³ The Abdulla Almanack may be obtained, price 1s. 4d., on application to the Abdulla Cigarette Company, 173, New Bond Street, London.

PREPARATIONS AND APPLIANCES.

A HÆMATOLOGY CHART.

THE importance of systematic examination of the blood in many pathological conditions is now recognized. The work necessitates skill in technique and sound knowledge of all known facts if interpretation is to be reliable and of practical service. Clinical pathologists should make a point of securing one of the large charts prepared by Dr. Henry Harold Scott, Government Bacteriologist, Jamaica, B.W.I., and Pathologist to the Kingston General Hospital.¹ This elaborate tabular chart contains a vast amount of valuable information effectively arranged for ready reference. Such a spectacular "Enquiry Within" should have a prominent place on the walls of every laboratory where blood work is undertaken.

PASSE-PARTOUT PICTURE-FRAMING.

Much attention has, very wisely, been devoted to the provision and regulation of graduated labour for tuberculous subjects capable of undergoing a considerable amount of physical exercise. But there has been unpardonable ignorance, apathy, and neglect in providing light, artistic, serviceable, attractive, and recreative occupations for such consumptive and other tuberculous cases as are bed-fast or seriously limited in their physical powers. No little of the failure of sanatorium management is due to the lack of understanding by the medical and nursing staff of the psychology of the tuberculous. The war has enlightened many minds in regard to this matter, but it is very necessary to continue to insist on the importance of handicrafts as agents in the proper management of tuberculous patients. The object of this note is to focus attention to the advantages of PASSE-PARTOUT PICTURE-FRAMING as a simple, pleasing, remunerative occupation, particularly for young tuberculous subjects. The Dennison Manufacturing Company, Ltd., have issued an illustrated booklet, "Dennison's Modern Art of Picture-Framing," which provides all necessary particulars for starting this delightful form of artistic handicraft.²

A RELIABLE HOT-WATER BOTTLE.

Medical Superintendents of sanatoria and their nursing staffs, thoroughly acclimatized to open-air conditions, in vigorous health, well-clothed, plentifully fed, and living a life of constant exercise, cannot but find it difficult to enter into the feeling of those patients who, sick, malnourished, and unaccustomed to exposure to cold, find themselves

¹ "Hæmatologist's Aid to Memory." By Henry Harold Scott, M.D., M.R.C.P., F.R.S.E., D.P.H., late Captain R.A.M.C. Published by John Bale, Sons and Danielsson, Ltd., Oxford House, 83-91, Great Titchfield Street, Oxford Street, London, W. 1. 1918. Price 5s. net, Cloth, 7s. 6d. net.

² Particulars regarding Passe-Partout Picture-Framing, with outfits for the same, may be obtained on application to the Dennison Manufacturing Company, Ltd., Sardinia House, 52, Lincoln's Inn Fields, Kingsway, London, W.C. 2.

suddenly plunged into an open-air life in mid-winter. There is no doubt but that many patients suffer needless discomfort and undergo



THE H. AND G. PERFECTED
HOT-WATER RUBBER
BOTTLE.

the chance of a leakage to a minimum. So many ordinary rubber bottles have a short life, and hence come to rank as rather extravagant luxuries. The "H. and G." is a non-leaker, durable, inexpensive, and is available in three useful sizes.

A POCKET FOUNTAIN PEN.

There is one tool and instrument of precision which neither doctors, nurses, nor patients can afford to be without—a reliable form of pocket fountain pen. To all tuberculous and other cases undergoing open-air treatment such a means for correspondence and registry of thoughts is simply indispensable. Lovers of the outdoor life, travellers by land, water, and air, sailors and soldiers, administrators and organizers, and indeed all sorts and conditions of capable, busy, and effective men and women use a fountain pen. After much experience of many kinds of pocket pens, we have no hesitation in awarding the palm to the pocket self-filling variety of WATERMAN'S IDEAL FOUNTAIN PEN. The self-filling device is provided in the form of a lever which fits flush on the barrel, and does not in any way detract from appearance or comfort in handling. The pen is simplicity personified. Nibs to suit all hands. As a working companion for doctors and patients we can most strongly recommend this pen, for we have submitted it to long and severe testing, and with fullest satisfaction. The Waterman's Ideal Fountain Pen is available at prices from 10s. 6d. upwards, according to finish and mountings. Full particulars may be obtained from L. G. Sloan, Ltd., The Pen Corner, Kingsway, London, W.C. 2.

¹ The H. and G. Perfected Hot-Water Rubber Bottle is supplied by the Hospitals and General Contracts Company, Ltd., 19-35, Mortimer Street, London, W. 1. Prices: 10 x 8 inches, 5s. 6d.; 12 x 8 inches, 6s. 6d.; and 12 x 10 inches, 7s. 6d.

REQUISITES FOR DOCTORS OR PATIENTS.

In connection with the clinical work of the wards or the conduct of investigations in the laboratory, every doctor and nurse must have experienced the need for some ready, convenient, and effective means for writing a name or direction on glass, chinaware, celluloid, and polished metals. Provision for this can now be found in the "CHINAGRAPH" PENCILS.¹ These appear at first glance to be ordinary pencils, but they are composed of writing materials which will allow of direct labelling of test-tubes, beakers, china dishes, and the like with any memoranda desired. The pencils are available in four different colours. The marks are clear and legible and will not smear or wear off by ordinary contact, but can be removed by washing or rubbing with a damp cloth. It is only necessary to use one of these pencils to be convinced of its advantages.

Medicated vapours are oftentimes of considerable service in the treatment of catarrhal states of the mucous membrane of the respiratory tract which are very common in tuberculous subjects as met with under ordinary conditions. Even under sanatorium management inhalations prove advantageous. A very pleasant and popular inhalant is "VAPEX."² It is often used with much advantage in "colds," hay fever, and like conditions associated with congestion of the nasal passages, and seems to alleviate some cases where the larynx is involved by tuberculous disease.

"CASTOLS" provide a very convenient form for the administration of a safe aperient to children.³ Each "castol" is a small sweetmeat "biscuit" which little people will welcome as a peculiarly delightful confection.

Photography provides an admirable recreation for many patients in sanatoria and other tuberculous subjects who have to follow an open-air life in order to maintain health. To all such, as well as to medical officers, nurses, and others interested in the science and art of photography, we commend "The 'Wellcome' Photographic Exposure Record and Diary."⁴ The 1919 issue is now available, and fully maintains all the excellent features of this popular pocket-book. It speaks much for the enterprise and scientific vision of the publishers that the publication of this valuable companion has not been interrupted by war conditions.

The Maltine Manufacturing Company, Ltd., and Messrs. Carnrick and Company, Ltd., have issued a 1919 edition of their well-known diary, which for many years has been a favourite with medical practitioners.⁵

¹ The "Chinagraph" Pencils are manufactured by Arthur Johnson, Ltd., at the Britannia Pencil Works, Neasden, London, N.W. 10. Price 4s. 6d. per dozen.

² "Vapex" is made by Messrs. Thomas Kerfoot and Co., Manufacturing Chemists, Bardsley Vale Mills, Bardsley, Lancashire.

³ "Castols" are manufactured by Messrs. Thomas Kerfoot and Co., Bardsley Vale Mills, Bardsley, Lancashire.

⁴ "The 'Wellcome' Photographic Exposure Record and Diary" for 1919 is published by Messrs. Burroughs, Wellcome and Co., Snow Hill Buildings, E.C. 1. Price 1s. 6d.

⁵ We understand that a few copies of the diary are still available for doctors, who should make application to the Maltine Manufacturing Company, Ltd., 183, Acton Vale, W. 3.

THE OUTLOOK.

"THE BRITISH JOURNAL OF TUBERCULOSIS."

THE BRITISH JOURNAL OF TUBERCULOSIS with the present issue passes into its teens. It first appeared in January, 1907, and with this number commences Volume XIII. The journal is the only British special periodical devoted solely to the study of Tuberculosis and the furtherance of the Tuberculosis Movement. It is an independent publication, the organ of no particular school, society, or institution, and without bias or prejudice, seeks to set forth the essential facts and guiding principles which should govern thought and action in regard to all medico-sociological aspects of the tuberculosis problem. The journal exists for the encouragement of scientific study, educational enterprise, and rational service. It endeavours to provide an effective medium for the presentation of such information, criticism, opinions, and suggestions as are likely to further the cause it seeks to serve. The journal since its foundation has considered its chief function to be that of providing a representative and authoritative periodical which without fear or favour strives for the co-operation of all honest workers, and the co-ordination of all worthy agencies and practical measures, aiming at the prevention and arrest of tuberculosis. With the passing of war and the coming of peace, there must be a quickening in the pace and an increase in the equipment of those who are engaged in the tuberculosis campaign. There is a danger of unintelligent reaction. The nation has bravely and triumphantly borne the great ordeal of world-wide war, but it still remains for us to conquer the foe in our midst, the ravages of which are disastrous and deadly and which still seriously threaten the health and happiness of all sections of society.

TUBERCULOSIS IN ENGLAND AND WALES IN WAR-TIME.

Sir Arthur Newsholme, in his recently issued annual report as Chief Medical Officer of the Local Government Board, provides statistical data and other information regarding the prevalence of tuberculosis in England and Wales under war conditions. The difficulty of drawing conclusions from statistical returns under existing circumstances is very rightly insisted on. The increase in actual deaths is indicated in the following table:

Year.	Increase in Deaths from Pulmonary Tuberculosis over the Number occurring in 1913 among—		
	Males.	Females.	Both Sexes.
1914	778	804	1,582
1915	2,596	2,025	4,621
1916	2,204	2,286	4,490
1917	2,636	3,422	6,058

The increased mortality has been shared by both sexes, but the greater extent of the increase in women than in men is the most striking feature of the figures for 1917. Sir Arthur Newsholme is quite definite in affirming that "there can be no hesitation in associating this excessive mortality among women with their more extensive employment in munition and other industrial occupations, under conditions of exceptional stress and strain, often associated with crowded lodging accommodation. Evidence is presented which shows that war has sadly interfered with the development of tuberculosis schemes. In most areas it has been impossible to carry out a full dispensary service. The amount of home visitation of patients by tuberculosis officers has been curtailed, and the important work of examination of contacts in many areas has been restricted. It is encouraging to find that certain special departments of hospitals have been approved as "dispensaries" for the diagnosis and treatment of lupus and other tuberculous skin troubles. As regards residential institutions, the number of beds available in such increased during the past year from 11,884 to 12,441, an increase secured mainly by the utilization of existing premises. "The increase in tuberculosis due to war conditions, and especially the need for providing adequate treatment in residential institutions for discharged soldiers and sailors suffering from this disease, demanded large addition to existing accommodation; but restrictions on capital expenditure and difficulties in obtaining adequate supplies of labour and material have involved delay in making this provision. Two institutions—Fazakerley Sanatorium, Liverpool, and the Bradford Sanatorium, Grassington, the erection of which was begun prior to the war—still remain unfinished owing to these difficulties." It is stated, however, that, through the financial aid of the Red Cross Society and the Order of St. John of Jerusalem, arrangements were made in conjunction with the Institutional Committee of the Ministry of Pensions to provide considerable additional accommodation for the residential treatment of tuberculous ex-soldiers and sailors who are certified to need such treatment, although not in a stage when restoration of any material degree of working capacity is probable. As a result of local conferences, arrangements have also been made whereby six local authorities have agreed to provide accommodation for tuberculous cases: West Heath Hospital, Birmingham; Ham Green Hospital, Bristol; Isolation Hospital, Derby; Eccleston Sanatorium, St. Helens; the Isolation Hospital, Southampton; and the Isolation Hospital, Exeter. Arrangements have also been made for beds to be available for the special cases of the Ministry of Pensions at certain existing sanatoria: Cottingham Sanatorium, Hull; Walker Gate Sanatorium, Newcastle; and Brierley Hall Sanatorium, Bradford. A lengthy section is devoted to the consideration of the treatment of discharged soldiers and sailors suffering from tuberculosis. Difficulty in maintaining discipline has arisen in many instances, as was anticipated would be the case. Difficulties were experienced in regard to a considerable class of patients prior to the war. "Unrest and insubordination are not infrequent when a sanatorium is unwisely administered, and the superintendent is not possessed of a strong personality, and is not imbued with a high sense of the importance and value of his work. If he does not impress on the men by 'straight talks' and by daily personal consultations as required that the rules of the institution are intended for the patient's own

benefit, to assist in his recovery, he is unlikely to succeed. If, after this has been carefully and considerably done, the patient refuses to conform, it is undesirable to continue his institutional treatment. This alternative is seldom required if the medical superintendent is tactful and resourceful. It is regrettable that in many sanatoria insufficient attention is given to the need to provide adequate useful occupation for the patient's mind and body. This is the most common cause of sanatorium failure. If this is not done, prolonged stay in a sanatorium is legitimately open to the charge often made that it produces deterioration in the character of patients."

Interesting data in regard to the present situation of the tuberculosis problem in England and Wales is provided in the last annual report of the Local Government Board.¹ Up to April 9, 1918, the Local Government Board have approved under the National Insurance Act, 1911, 312 residential institutions, containing 12,441 beds, for the treatment of tuberculosis. Of this number 143 institutions, containing 6,381 beds, had been provided by local authorities, and 169 institutions, containing 6,060 beds, by voluntary bodies. In addition, 377 dispensaries have been approved, of which 341 have been provided by local authorities. Although the increase during the year of available beds has been nearly 600 "there is a necessity at the present time for the provision of further accommodation, particularly for advanced cases of the disease, and for the treatment of men discharged from the Army and Navy." The report furnishes particulars regarding such arrangements as have been made for the treatment of tuberculous soldiers and sailors, and the statement is made that "the Ministry of Pensions have undertaken to defray the cost of the residential treatment of discharged soldiers and sailors suffering from tuberculosis in any case in which the tuberculosis officer (or other medical adviser of the Insurance Committee) certifies that the condition of the patient renders it desirable that he should be an inmate of a residential institution, although it is not reasonably probable that residential treatment will restore the patient to any material degree of capacity. It is interesting to note that the total amount of maintenance grant paid during the year ending March 31, 1918, was £325,661 7s. 1d. The total grants paid in respect of expenditure incurred during the financial year 1916-1917 amounted to £299,546 11s. 1d., inclusive of grants on account paid during that year. During the year there were paid capital grants amounting to £29,596, and loans sanctioned amounting to £9,828, for the provision of institutions for the treatment of tuberculosis.

THE PREVENTION AND ARREST OF TUBERCULOSIS

The nineteenth annual general meeting of the National Association for the Prevention of Consumption and other Forms of Tuberculosis was held on October 29, 1918, at 20, Hanover Square, London, W. 1. Particulars were presented of the farm colony for tuberculous soldiers and sailors which is in course of development. An appeal has been issued for £50,000 and nearly £24,000 has been collected. An admirable stretch of land (both arable and pasture, some 118 acres) has been

¹ "Forty-Seventh Annual Report of the Local Government Board, 1917-1918." [Cd. 9157.] Issued by H.M. Stationery Office, Imperial House, Kingsway, London, W.C. 2. 1918. Price 4d. net.

secured in a secluded situation at Frimley, in Surrey (close to Frimley and Farnborough Stations on the L. and S.W. Railway), and about thirty-five miles from London. Temporary arrangements have been made for the colonists to live in one of the blocks of the Brompton Hospital Sanatorium, which is only about a mile off. It is proposed that all the men who will be admitted to the colony will have already received a course of sanatorium treatment, and be in a condition to do a full day's work. The colonists will be trained in all branches of farm and market-garden work necessary to fit them for situations or small-holdings in this country, or for service in the Colonies should they desire to emigrate. They will be taught tilling and planting the land, dairy work, the stocking, breeding, and care of cattle, horses, pigs, sheep, poultry-farming, bee-keeping, the buying and selling of grain, fruit growing and packing, etc. In addition they will receive instruction in the carpenter's shop, the blacksmith's forge, and in the use of motor engines, etc. There will also be classes and lectures held by experts. The scheme is an ambitious one, and, it is hoped, will prove successful. The Council have also considered the desirability for the provision of suitable accommodation for advanced cases of consumption. It has been thought that if small homes were started in the vicinity of the patients' own home and friends, there would be less difficulty in getting patients in an advanced stage of the disease to enter them. This plan, it is believed, would be far more successful than to attempt to segregate these patients in a large institution far from their own people, from which experience shows they discharge themselves almost immediately. A valuable address was delivered by Professor Selskar M. Gunn, Associate Director of the Commission for the Prevention of Tuberculosis in France (the headquarters of which are at 12, rue Boissy d'Anglas, Paris III^e) on "Tuberculosis Propaganda Work in France." Dr. Gunn showed how the Commission had sought to adapt some of the plans that have been found useful in the United States to conditions existing in France. The effort has been conducted through the agency of newspapers, exhibits, posters, and pamphlets, and by holding public meetings. A series of articles prepared by the Educational Division of the Commission have been printed in thirty-six newspapers. The travelling exhibit has proved very effectual. This is in charge of a directrice and there is a personnel of six, including chauffeur, moving-picture operator, two lecturers, and an advanced agent. The exhibit is carried on a truck and moves from town to town. At the present time there are three exhibits in operation. Within a few months the number will be increased to six. They have already been shown in the departments of: Bure-et-Loir, Loir-et-Cher, Indre-et-Loir, Cher, Allier, Ille-et-Vilaine, Finistere, Côtes-du-Nord, and Loire-Inférieure. In time it is hoped that they will cover the whole of France. When an exhibit is to be shown in a town, a conference is arranged so that the people may have the benefit of the spoken word as well as that printed on the charts. These conferences have been held in communities having a population of 3,000 or more. The audiences in many instances have numbered fifty per cent. of the population. The meetings are thoroughly advertised, many posters are put on the walls, and the local newspapers carry notices. But the success of the conferences and of the exhibits has really been due to the help and co-operation of the Prefets, Sous-Prefets, and Maires, who have given them their hearty support and in many communities

have consented to act as chairmen and to speak to the citizens. The Commission has prepared and disposed of a large variety of brochures, in order that the people attending its meetings may take information home and study such at their leisure. These booklets are illustrated by French artists and many are in colour: 1,513,568 copies have already been distributed. In carrying on the educational features of the work, the Commission has always felt that people were glad to know the facts about disease, especially about such a disease as tuberculosis. Experience has shown that this supposition is correct. The problem has consequently been to tell the people the important facts in as forceful language as possible, in as many ways as possible, and as often as possible! With the continued help of French officials and of the French people, it is hoped that the work will go on until every citizen of the French Republic knows the truth about tuberculosis. It is much to be desired that means should be found whereby the progressive American Commission for the Prevention of Tuberculosis might co-operate with the British National Association for the Prevention of Consumption and so bring enlightenment regarding measures for the prevention and arrest of tuberculosis to all dwellers in the cities and towns and villages of Britain.

TUBERCULOSIS AND THE CARE OF THE CHILD.

Tuberculosis is in great measure a problem of childhood. Much of the tuberculosis met with in adolescents and adults has its beginnings in early days. A considerable part of the tuberculosis met with in school children had its initiation in pre-school days. Tuberculosis is essentially a disease which is home-born and home-grown. The study of tuberculosis must commence with infancy and childhood, and the tuberculous child must be considered in relation to its parents and its home. In our endeavours to prevent and arrest tuberculosis no measures can be considered complete unless these place the child in the very forefront. And no means to protect and succour the child can be expected to have more than limited success unless healthy home conditions are secured for its development. For many years we have striven to focus the attention of workers in the Anti-Tuberculosis Movement on the needs of the child. As far back as the summer of 1907 this journal devoted a special number to the consideration of tuberculosis in early life.¹ This was followed by the publication, in 1908, of a collection of authoritative studies covering all aspects of the problem of tuberculosis occurring in the developmental period.² It is ten years since the following concluding sentences of this work were written, but they still stand as applicable to the position of to-day: "No Anti-Tuberculosis Movement can hope to attain any full measure of success if it is content to subordinate the care of the children to a second place. In the carrying out of a wise anti-tuberculosis policy, the protection of infancy and childhood must be the first duty. To

¹ See *British Journal of Tuberculosis* for July, 1907, a special number dealing with "Tuberculosis in Infancy and Childhood."

² "Tuberculosis in Infancy and Childhood: its Pathology, Prevention, and Treatment." By Various Writers. Edited by T. N. Kelynack, M.D. Published by Baillière, Tindall, and Cox, 8, Henrietta Street, Covent Garden, W.C. 2. 1908. Price 12s. 6d. net.

fulfil this most responsible and heavy task individual effort must be supplemented and completed by national action." Very reluctantly and by slow and gradual steps the policy advocated by this journal a decade ago is being recognized as the only sound one. A Joint Sub-Committee of the Education and Public Health Committees of the London County Council has for some time been considering the case of the tuberculous and tuberculously disposed London school child: a Report dated November 5, 1918, has been issued. This Report is one of such importance that we consider it desirable to reproduce it in its entirety: "1. In accordance with the reference from the Education and Public Health Committees, we have inquired into the whole question of the education of children who have been notified as tuberculous, of children who have symptoms of tuberculosis, and of children who have recovered from tuberculosis, and we have considered statistics as to the number of children concerned, the number and types of schools which would be necessary, and the cost involved. We would point out that the position with regard to the tuberculous child has altered considerably in two ways since we were appointed to inquire into this question—viz. (i.) on account of the Education Act having made the provision of schools for the physically defective children a statutory duty, and (ii.) because there will no longer be a question as to a financial advantage being gained through the Council receiving the 'Hobhouse' grant for these children from the Local Government Board rather than the education grant, since the Treasury payment will presumably now be the same in either case. I. *Present Arrangements*: The children who have been notified as tuberculous (other than those who are being treated in residential institutions) may be considered as falling into three categories: (1) Children attending at the Kensal House School for tuberculous children, or at the six-day sanatoria schools which the Council is temporarily aiding; (2) children attending classes carried on by voluntary agencies; (3) children totally out of school under medical certificates. In London there are, in addition to the four schools carried on by the Council in children's hospitals, six distinct sets of schools or classes for the benefit of children who are not in a normal state of health—(i.) two open-air schools, certified as schools for physically defective children; (ii.) open-air classes carried on in connection with ordinary elementary schools; (iii.) day sanatoria classes; (iv.) Kensal House School for tuberculous children; (v.) special schools for defective children; (vi.) classes carried on by voluntary agencies. (i.) The two open-air schools maintained by the Council are Birley House (Lewisham) and Shooter's Hill (Woolwich). These schools are certified by the Board of Education under the Elementary Education (Defective and Epileptic Children) Act, 1899. Pupils are admitted to them on the recommendation of the school doctors in connection with the medical examination of all the pupils in the elementary schools, and are selected by the doctor at the open-air school. The type of child selected for admission is one who is not suitable for admission to the schools for the physically defective, but who is unable, through anæmia, debility, or incipient tuberculosis, to keep pace with the ordinary child in school. In both schools the classes are mixed, and on educational grounds admission is restricted to pupils between the ages of nine and thirteen. The pupils receive three meals a day at the schools, and the

parents contribute towards the cost of the food, the amount of the contribution being assessed by the managing committee of each school. When necessary, free travelling to and from the schools is afforded to the pupils. (ii.) Open-air classes in connection with ordinary elementary schools are held each year during the summer months in the playgrounds or roof playgrounds of a number of the schools, or in the parks or open spaces. These classes consist of the following four types: *Type A*: A class held at a centre and composed of delicate children from neighbouring schools, selected by the school medical officer, the same class working in the open air all the summer. *Type B*: A class of delicate children specially selected from various classes in one school, the same children being in the open air class all the summer. *Type C*: An ordinary school class working in the open air during the whole of the summer. *Type D*: Various classes of a school working in the open air in turn for a session, a day, a week, or a month at a time. The classes are kept under observation by the school medical officer, and in the case of *Type A* classes the pupils are selected by the school doctor and examined by him periodically. There is no restriction as to the age of pupils on admission, but endeavours are made to limit admissions to pupils who are of about the same educational attainments. In the case of classes held in the parks or open spaces the children are accommodated in the bandstand or enclosure, or under a specially erected awning. No meals are provided by the Council to the pupils except in the case of delicate pupils in the *Type A* classes, where the children are supplied with milk meals each morning. (iii.) The day sanatoria classes were established in 1917 in connection with the voluntary tuberculosis dispensaries in the following boroughs: Battersea, Fulham, Bermondsey, Camberwell, and Hammersmith. The children are selected by the dispensary doctor, and admitted to the classes on the authority of the Public Health Department of the Council. The classes are inspected by the Council's officers. The Council provides teachers and some equipment. The difference between the children in attendance at these sanatoria classes and those in attendance at the open-air schools is that the former are known definitely to be suffering from active tuberculosis, while in the case of the latter the children are of a pre-tuberculous type. The day sanatorium class in Ravenscourt Park, Hammersmith, was organized by the Invalid Children's Aid Association. (iv.) In 1910 a school for tuberculous children was opened at Kensal House, in premises provided and maintained by the Paddington dispensary for the prevention of consumption, the education being provided by the Council. The children come from homes where proper treatment can be relied upon, whereas the children who attend day sanatoria classes are living in less favourable homes, and are in need of more medical inspection than the Kensal House children. The Board of Education agreed to recognize the Kensal House School under the terms of the Elementary Education (Defective and Epileptic Children) Act, 1899, provided that the school was confined to such children having incipient phthisis, or with the disease in a definite form, or sub-acute or chronic in nature, as are unable on account of physical unfitness or debility to benefit by instruction in an ordinary public elementary school, but are not incapable, by reason of their physical condition, of receiving benefit in a special school. (v.) The day schools for physically defective children are certified by

the Board of Education under the Act of 1899. Thirty-six such schools have been provided, situated fairly evenly over London. Arrangements are made for the conveyance of the pupils to these schools by means of ambulances and hired omnibuses, except in the case of those who are passed by the school doctor as suitable for walking to school, or for riding by public conveyance. The children are provided with a mid-day meal, which is prepared on the premises, and the parents contribute towards (except in necessitous cases) the cost thereof. The schools are under constant medical supervision, and a trained nurse is in attendance. (vi.) A few open-air classes are carried on by voluntary agencies such as Miss MacMillan's Camp School at Deptford and the Regent's Park Bandstand Class. Provision for education is also made by the Council in schools at Cromwell House, Highgate, N., the National Orthopædic Hospital, Great Portland Street, W., the Alexandra Hospital, Bloomsbury, and the Hospital and Home for Incurable Children, Hampstead.

II. *Number of Children*: In connection with an inquiry made four years ago as to the needs of school accommodation for tuberculous children it was ascertained that there were, in the County of London, about 1,000 children who had been excluded from ordinary elementary schools on account of tuberculosis. We are advised, however, that the number of tuberculous children now to be provided for is much in excess of this number, and it is considered that the number of school places required for pulmonary cases may be estimated at 2,000. We are also advised that, in addition to these 2,000 children definitely notified as tuberculous, there are 2,000 requiring open-air treatment owing to anæmia, debility, or incipient tuberculosis, and that, so far as can be seen, and looking ahead for about ten years, these figures can be regarded as complete.

III. *Proposed Types of Schools*: In actual practice the only difference between the tuberculous children in attendance at the day sanatoria classes and the Kensal House School, from the medical point of view, is that they are suffering from tuberculosis in a greater or less degree, and, therefore, capable of education in inverse proportion to the activity of the disease. This means that a child at a day sanatorium class is capable of receiving a less amount of education than a child at Kensal House. If the fact of notification is taken as the reason for the admission of a child to the school, then the only consideration is whether the child is in need of treatment, and, if so, can the treatment be satisfactorily given in a day sanatorium or not? The amount of education in such institutions will naturally be subject to the condition of the child, and will vary considerably from week to week. We, therefore, suggest that the Council should consider the desirability of recognizing and establishing one type of day school for the definitely tuberculous children of school age, and that the only children to be admitted should be those who are notified cases of tuberculosis. We also consider that the school should approximate to Kensal House School. It would also be desirable to aim at an average attendance of say, 100 children, inasmuch as a unit of this size would enable the school to be economically managed and would also provide for proper classification of the children in respect of their tuberculous condition and their educational attainments. It may, however, be found more convenient, having regard to the needs of particular districts or to the possibilities in certain districts of obtaining accommodation at a lower cost, to vary this figure slightly. The type of child with incipient phthisis or who is anæmic or

debilitated but with no definite evidence at the time of examination of active tuberculous disease, is either in attendance at an elementary school, or "out of school," and should, we consider, be provided for by means of a special school of the open-air type on the lines of the Birley House School. If these proposals are accepted, the practical effect would be that a tuberculous child, having been excluded from an elementary school, and notified to the medical officer of health as such, would be sent either to a school for tuberculous children or to a sanatorium for residential treatment under the Council's tuberculosis scheme. A child sent to a residential sanatorium would, at some period in its career, if it made satisfactory progress in the residential sanatorium, return to the elementary school via the school for tuberculous children, or possibly the open-air school, and similarly a child who was sent in the first instance to the open air school might proceed either to an institution for residential treatment or to the school for tuberculous children, if the disease turned out to be an active form of tuberculosis. The Education Committee will be concerned with the tuberculous child who is in attendance at either of the types of schools mentioned or who is out of school, and the Public Health Committee will be concerned with the child who is deemed to require residential treatment. The pre-tuberculous child, who cannot yet be regarded as suffering from active tuberculosis, would be put into the open-air school until such time as the diagnosis was sufficiently definite for it to be transferred either to a day school for tuberculous children or to a residential institution or until it was able to return to an elementary school.

IV. *Distribution and Structure of the Proposed Schools*: On the basis of 2,000 pulmonary cases and an accommodation of 100 children to a school it would be necessary for the Council to provide 20 schools for children with pulmonary tuberculosis. In certain instances where the premises are suitable and the accommodation available it may be possible to increase the unit to 120 or more, in which case the total number of schools would be proportionately reduced. As stated above, this number of schools may be varied, but it is not anticipated that the total will be exceeded. The best situation for these schools would probably be in the outlying parts of London, and on or near to a tram route. It would be necessary for the Council to pay the travelling expenses of the pupils to and from the schools, and also to provide meals for them, in cases where the parents or guardians of the children were not in a position to do so. The importance of a school being on a tram route cannot be too strongly emphasized in view of the distance which many of the pupils would have to travel, and also the very great expense which would be involved if it were necessary to organize an ambulance service for the conveyance of the children. It would be possible to provide these schools outside the county if it was thought desirable. We have received several applications from local tuberculosis committees for the provision of schools in various districts, and we propose, if the Council adopts the scheme, to consider each of these cases. It might be possible to obtain from the Government some disused army huts and adapt them for this special purpose. Owing, however, to the need for supplying drainage, gas and water, kitchen, scullery, store rooms, staff rooms, bath rooms, medical inspection room, etc., it would be desirable that every effort should be made to obtain a large private house with grounds of fair dimensions in preference to obtaining land on which all these rooms, etc., had to be provided.

The existing day sanatoria are insufficiently supplied as regards washing and sanitary arrangements and other conveniences, and do not lend themselves to improvement. We consider, therefore, that the Council should, on the opening of proper accommodation in the district, cease to aid them. For the accommodation of the 2,000 children who are in need of open-air schools, we consider that eight open-air schools of the Shooter's Hill and Birley House type, each accommodating 200 children, should be provided in addition to the two existing schools—two in the south-west and two each in the north and east, and one each in the north-west and west districts. This number of open-air schools, together with a large development in the number of, and the improvement of the playground classes, would probably be found to be sufficient.

V. Management of the Proposed Schools : The proposed schools for tuberculous children and the open-air schools would come under the provisions of the Elementary Education (Defective and Epileptic Children) Act, 1899, and they would, therefore, come within the regulations for these schools. For the management of each school it is suggested that, if possible, arrangements should be made for members of existing local tuberculosis committees to be appointed. These committees were formed by the Council, and comprise representatives from various societies and associations connected with the work. The success of the schools would largely depend upon the activities of the managing committee, as so much depends upon the after-care work and the inspection of the home conditions, and these committees have already had considerable experience of the work. It would be necessary to appoint for each school a head-teacher, a nurse, an assistant teacher for each twenty-five children, and also a cook, a helper, and a schoolkeeper. In order to obtain full benefit from the schools, we consider that meals should be provided for the pupils (the cost being recovered from the parents as far as practicable), and that a part-time doctor should be allocated to each school.

VI. Cost : Our proposals involve the provision of new accommodation for, and the maintenance of, schools for 2,000 tuberculous children, provision for, and maintenance of, additional open-air schools, and the increase and improvement of playground classes. Although the structure of both types of schools would be simple, and the cost therefore proportionately less, it would be desirable to obtain ground of larger dimensions than is usually secured for the ordinary elementary schools. Moreover, schools of small size would tend to increase the cost per head. Taking these factors into consideration, it would probably be found that the initial capital outlay for the provision of 2,000 places in tuberculous schools, and 1,600 places in open-air schools, would be about the same as that of the ordinary schools, viz., £30 a head or a total capital cost of £108,000. The maintenance charges per head for tuberculous schools would probably be some figure between that of open-air schools, viz., £18 15s. 8d. (gross), and that of schools for the physically defective, viz., £27 7s. 5d. (gross). As we do not propose that an ambulance service should be established for these schools, and as this represents about one-third of the total cost of the schools for the physically defective, it is estimated that the cost for schools for tuberculous children would be about £20 a head (gross). On this basis the annual additional expenditure (gross) would be about £40,000, but from this there should be deducted the cost of the day sanatoria, which it is proposed should be discontinued, viz., £700. As the Board of Education will pay half the cost of the maintenance of

the schools, the net cost of the proposed schools will, it is estimated, be about £20,000 a year. The cost of the eight additional open-air schools each accommodating 200 pupils would be about £16,000 a year for maintenance. Probably £1,000 a year would be sufficient for the immediate increase and improvement of the playground classes, and £1,000 a year for the salaries of part-time doctors. The total cost of the scheme is thus about £108,000 capital, and £58,000 a year for additional maintenance. If the principle is approved by the Council, we suggest that the acquisition of the necessary properties for the establishment of these schools should be proceeded with as soon as possible, but we do not anticipate that any expenditure will be incurred during the current financial year. During the early part of next year, however, we hope that it will be possible to submit to the Council proposals for the establishment of five or six schools. It will be necessary to communicate with the Finance Committee under standing order No. 249. The General Purposes Sub-Committee have been asked to submit the estimates. We recommend: (a) That schools for the education of tuberculous children be established by the Council; (b) that admission to the schools referred to in the foregoing resolution (a) and to the open-air schools be restricted to children who have been certified by the school medical officer; (c) that a committee of management, consisting of members of the local tuberculosis committees, together with members appointed by the Council, be appointed for each school for the education of tuberculous children and each open-air school; (d) that meals be provided for the children in attendance at schools for tuberculous children and at open-air schools, and that the parents be required, where their circumstances admit, to contribute towards the cost thereof; (e) that estimates of expenditure on capital account of £108,000, and on maintenance account of £58,000, under standing order No. 246, in respect of the establishment by the Council of schools for the education of tuberculous children, be submitted to the Finance Committee; that the estimates be approved as estimates of costs, debt, or liability under section 80 (3) of the Local Government Act, 1888; (f) that the foregoing resolutions (a) to (e) inclusive be submitted to the Council." To criticize adequately such a Report would require much space and would necessitate a restatement of the whole problem of tuberculosis, in so far as it relates to infancy and childhood. We trust that the Report will receive the fullest consideration. We are strongly of opinion that before the London County Council or other local bodies are permitted to enter into such partial and expensive experiments as are recommended in the above Report, an Inter-Departmental Committee representing the Local Government Board, the Board of Education, and the Home Office should consider the question of tuberculosis and the child in all its bearings. This Committee should be appointed at once and should include the best experts available in this country. Special Commissioners should also be appointed to visit America, France, and other countries where this matter is now receiving consideration, and to furnish reports regarding measures which have been found of service in these countries. The Committee should be directed to furnish its report within the year. We believe that such action would accomplish much to further rational and effective measures for the prevention and arrest of tuberculosis among children and young subjects in this country.